

No.

8000100



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Northrup King Company

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.


NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. THE SAID CERTIFIED SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

DURUM WHEAT

'Aldura'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this 19th day of November in the year of our Lord one thousand nine hundred and eighty-one.

Attest:


Samuel C. Case
Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

John R. Block
Secretary of Agriculture

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

FORM APPROVED
OMB NO. 40-R3822

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1a. TEMPORARY DESIGNATION OF VARIETY 76D 1107		1b. VARIETY NAME Aldura		FOR OFFICIAL USE ONLY PV NUMBER 8000100	
2. KIND NAME Durum Wheat		3. GENUS AND SPECIES NAME <u>Triticum durum</u> Desf.		FILING DATE 4/30/80	TIME 8:00 A.M. P.M.
4. FAMILY NAME (BOTANICAL) Gramineae		5. DATE OF DETERMINATION June 1977		FEE RECEIVED \$ 500.00 \$ 250.00	DATE 4/30/80 9/30/81
6. NAME OF APPLICANT(S) Northrup King Co.		7. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code) 1500 Jackson St. N.E. Minneapolis, MN 55413		8. TELEPHONE AREA CODE AND NUMBER (612) 781-5305	
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) Corporation		10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION Delaware		11. DATE OF INCORPORATION 1896	
12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS: Robert W. Romig Northrup King Co. 1500 Jackson St. N.E., Minneapolis, MN 55413					

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- ☒ 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- ☒ 13B. Exhibit B, Novelty Statement.
- ☒ 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
- ☒ 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a). (If "Yes," answer 14B and 14C below.) ☒ YES ☐ NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☒ YES ☐ NO

14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED? ☒ FOUNDATION ☒ REGISTERED ☒ CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? ☒ YES ☐ NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

APRIL 23, 1980
(DATE)

Robert W. Romig
(SIGNATURE OF APPLICANT)

8:00 A.M. 4/30/80
INSTRUCTIONS

GENERAL: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and \$500 fee (\$250 filing fee and \$250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

- 5 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.
- 13a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.
- 13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.
- 13c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.
- 13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as, plant habit, plant color, disease resistance, etc.
- 14a If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)
- 15a See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.

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EXHIBIT A

Origin and Breeding History of the Variety

The durum wheat Aldura is the product of hybridization and subsequent individual plant selection in the F2 to F5 generations from the cross Albatross/Leeds. It has the pedigree N4179-12A-1F-1A. Albatross is a semi dwarf durum breeding line developed by the CIMMYT program in Mexico from a complex cross which includes the common wheat Norin 10 as the source of dwarfing. Leeds is a normal height durum variety with good quality released by the North Dakota Agricultural Experiment Station.

We made the cross Albatross/Leeds in the greenhouse at Eden Prairie, Minnesota in the spring of 1972. We then grew the F1 as a bulk at Twin Falls, Idaho that summer. This was followed by individual plant selection in the F2 at Yuma, Arizona in the 1972-73 season; in the F3 at Moorhead, Minnesota in 1973; and in the F4 at Yuma in 1973-74. We harvested the F5 row at Moorhead in the summer of 1974 as a bulk for a preliminary yield trial. This population was maintained as a pure-line for two generations at which time we harvested 20 heads (F8 seed) for the development of breeders seed.

The 20 head rows were grown near San Diego, California in the summer of 1976. We harvested each row separately for plots which were grown at Yuma with supplemental lighting during the fall and winter of 1976-77. These plots were harvested separately and replanted at Yuma in the spring of 1978. On the basis of quality data and subsequent yield data, we selected one of these plots, 77ADH3-4, to represent the variety. Aldura, therefore, is a pure line derived from an F8 head-row. We grew a 10-acre field of breeders seed at Yuma in 1978 (78 AD-2). 8/25/81

We expect to maintain breeders seed as pure-line increases from this lot.

No discernible, unusual, or characteristic variants, other than the slight variation which might normally be expected from an F8 bulk have been noted during reproduction and multiplication of Aldura in the Yuma, Arizona environment. On the basis of our experience in the multiplication and increase of Aldura wheat, the variety appears to be uniform and stable. Foundation seed has been inspected and approved by the Arizona Crop Improvement Association.



NORTHROP KING CO.
P.O. BOX 959, MINNEAPOLIS, MN 55440

EXHIBIT B

Novelty Statement

Aldura is most similar to Produra, but differs from Produra in that the awns are white, not black, and the glumes are glabrous, not pubescent. It also differs from Produra in producing a semolina with a deeper yellow color.

Among white awned varieties, Aldura most closely resembles Mexicali 75 but differs in that it heads from three to seven days later than Mexicali and produces a semolina with a deeper yellow color.

FORM GR-470-6
(2-15-73)UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782EXHIBIT C
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY

INSTRUCTIONS: See Reverse.

WHEAT (TRITICUM SPP.)

NAME OF APPLICANT(S)

Northrup King Co.

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)

1500 Jackson St. N.E.
Minneapolis, MN 55413

FOR OFFICIAL USE ONLY

PVPO NUMBER

8000100

VARIETY NAME OR TEMPORARY
DESIGNATION

Aldura

Place the appropriate number that describes the varietal character of this variety in the boxes below.

Place a zero in first box (e.g. or) when number is either 99 or less or 9 or less.

1. KIND:

 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:

 1 = SPRING 2 = WINTER 3 = OTHER (Specify) 1 = SOFT 2 = HARD 3 = OTHER (Specify) Durum 1 = WHITE 2 = RED 3 = OTHER (Specify) Amber

3. SEASON - NUMBER OF DAYS FROM EMERGENCE TO:

 FIRST FLOWERING LAST FLOWERING

4. MATURITY (50% Flowering):

 NO. OF DAYS EARLIER THAN 1 = ARTHUR 2 = SCOUT 3 = CHRIS
 NO. OF DAYS LATER THAN 4 = LEMHI 5 = NUGAINES 6 = LEEDS
7 = Produra

5. PLANT HEIGHT (From soil level to top of head):

 CM. HIGH CM. TALLER THAN 1 = ARTHUR 2 = SCOUT 3 = CHRIS
 CM. SHORTER THAN 4 = LEMHI 5 = NUGAINES 6 = LEEDS
7 = Produra

6. PLANT COLOR AT BOOTING (See reverse):

 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

7. ANTHUR COLOR:

 1 = YELLOW 2 = PURPLE

8. STEM:

 Anthocyanin: 1 = ABSENT 2 = PRESENT Waxy bloom: 1 = ABSENT 2 = PRESENT
 Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT Internodes: 1 = HOLLOW 2 = SOLID
 NO. OF NODES (Originating from node above ground) CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES:

 Anthocyanin: 1 = ABSENT 2 = PRESENT Hairiness: 1 = ABSENT 2 = PRESENT

10. LEAF:

 Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER (Specify): Flag leaf: 1 = NOT TWISTED 2 = TWISTED
 Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT
 MM. LEAF WIDTH (First leaf below flag leaf) CM. LEAF LENGTH (First leaf below flag leaf):

11. HEAD:

☐ 2 Density: 1 = LAX 2 = DENSE ☐ 4 Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE
4 = OTHER (Specify) Oblong

☐ 4 Awedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

☐ 7 Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED
5 = BROWN 6 = BLACK 7 = OTHER (Specify) Light brown or tan

☐ 0 ☐ 9 CM. LENGTH ☐ 1 ☐ 5 MM. WIDTH

12. GLUMES AT MATURITY:

☐ 3 Length: 1 = SHORT (CA. 7 mm.) 2 = MEDIUM (CA. 8 mm.)
3 = LONG (CA. 9 mm.)

☐ 3 Width: 1 = NARROW (CA. 3 mm.) 2 = MEDIUM (CA. 3.5 mm.)
3 = WIDE (CA. 4 mm.)

☐ 1 1 = Glabrous 2 = Pubescent

☐ 1 Shoulder 1 = WANTING 2 = OBLIQUE 3 = ROUNDED
shape: 4 = SQUARE 5 = ELEVATED 6 = APICULATE

☐ 3 Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

13. COLEOPTILE COLOR:

☐ 1 1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN:

☐ 2 1 = ABSENT 2 = PRESENT

15. JUVENILE PLANT GROWTH HABIT:

☐ 3 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

16. SEED:

☐ 3 Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL

☐ 1 Cheek: 1 = ROUNDED 2 = ANGULAR 3 = BLOOMING

☐ 1 Brush: 1 = SHORT 2 = MEDIUM 3 = LONG

☐ 1 Brush: 1 = NOT COLLARED 2 = COLLARED

☐ 2 Phenol reaction 1 = IVORY, 2 = FAWN 3 = LT. BROWN
(See instructions): 4 = BROWN 5 = BLACK

☐ 2 Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER (Specify) 3 = BLOOMING

☐ 0 ☐ 8 MM. LENGTH ☐ 0 ☐ 3 MM. WIDTH

☐ 5 ☐ 1 GM. PER 1000 SEEDS

17. SEED CREASE:

☐ 1 Width: 1 = 60% OR LESS OF KERNEL 'WINOKA'
2 = 80% OR LESS OF KERNEL 'CHRIS'
3 = NEARLY AS WIDE AS KERNEL 'LEMHI'

☐ 2 Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT'
2 = 35% OR LESS OF KERNEL 'CHRIS'
3 = 50% OR LESS OF KERNEL 'LEMHI'

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

☐ 2 STEM RUST (Races) ☐ 2 LEAF RUST (Races) ☐ 0 STRIPE RUST (Races) ☐ 0 LOOSE SMUT

☐ 1 POWDERY MILDEW ☐ 0 BUNT ☐ OTHER (Specify) 0

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

☐ 0 SAWFLY ☐ 0 APHID (Bydv.) ☐ 0 GREEN BUG ☐ 0 CEREAL LEAF BEETLE

☐ OTHER (Specify) _____ HESSIAN FLY RACES: ☐ 0 GP ☐ 0 A ☐ 0 B ☐ 0 C
☐ 0 D ☐ 0 E ☐ 0 F ☐ 0 G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	<u>Produra</u>	Seed size	<u>Rugby</u>
Leaf size	<u>Cando</u>	Seed shape	<u>Coulter</u>
Leaf color	<u>Produra</u>	Coleoptile elongation	<u>Produra</u>
Leaf carriage	<u>Produra</u>	Seedling pigmentation	

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

- L.W. Briggie and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.
- W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. (See attachment.)

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

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EXHIBIT D

Additional Description of the Variety

Aldura is a cultivar of Triticum durum Desf. with spring growth habit. The kernels are free-threshing, amber, vitreous, long, and elliptical. Kernel size is about 8 mm long and 3 mm wide. The germ is small. The cheeks are rounded with a mid-deep, narrow crease. The brush is short and not collared.

The spike is awned, oblong, and dense. Head length is typically 9 cm long and 15 mm wide, but may be small under stress conditions. Glumes are light brown or tan, glabrous, long, and wide. Shoulders are wanting. Beaks are acuminate. The keel is strong. Awns are white.

The coleoptile color is white and anthocyanin is present in the seedling. Juvenile growth habit is erect. Plant color at booting is green. Waxy bloom is present on the steam and flag sheath. Leaf blades and sheath are not hairy. The auricles are not hairy and have no anthocyanin. The stem is hollow. Usually three nodes originate from the node above the ground.

The last rachis internode is smooth. Three tufts of hair originate at the rachis nodes. The flag leaf is erect at booting and not twisted. Anther color is yellow.

Aldura is a short stature wheat, approximately 7 cm shorter than Produra. The peduncles usually show a slight S shaped crook below the rachis, similar to that found in the common wheat cultivar, Siete Cerros. The stems are strong and resistance to lodging is excellent. Maturity is slightly later than Produra. Aldura is moderately susceptible to powdery mildew, Erysiphe graminis D.C. It is resistant to the races of leaf rust, Puccinia recondita Rob. ex Desm. and stem rust, P. graminis Erikss. and Henn. prevalent in the Midwest in 1978.

Aldura is well adapted to the irrigated wheat areas of Arizona and California. The semolina color is almost equal to that of North Dakota durum and cooking quality is good.

TABLE 2. COMPARISON OF QUALITY CHARACTERISTICS OF ALDURA AND PRODURA FROM YUMA, ARIZONA SAMPLES

CHARACTERISTIC AND YEAR	VARIETY	
	ALDURA	PRODURA
1,000 KW (GMS)		
1976	56	58
1977	51	54
1978	45	54
AVERAGE	51	55
BRIGHTNESS (1)		
1976	80.8	75.8
1977	76.1	72.1
1978	79.7	77.7
AVERAGE	78.9	75.2
RED (1)		
1976	1.0	4.4
1977	2.9	1.5
1978	0.7	1.4
AVERAGE	1.5	2.4
YELLOW (1)		
1976	42.0	32.8
1977	39.4	24.7
1978	37.1	24.8
AVERAGE	39.5	27.4

(1) These are Neotech Du Color Values.

TABLE 3. DATE OF HEADING COMPARISONS OF ALDURA AND PRODURA

LOCATION AND YEAR	VARIETY		DIFFERENCE (1)
	ALDURA	PRODURA	
YUMA, AZ.			
1976	MARCH 10	MARCH 14	-4
1977	MARCH 14	MARCH 13	+1
1978	MARCH 21	MARCH 19	+2
WOODLAND, CA			
1976	APRIL 19	APRIL 19	0
1978	MARCH 26	MARCH 26	0

(1) Negative value indicates earlier heading.

TABLE 4. RELATIVE MATURITY COMPARISON OF ALDURA AND PRODURA (1)

LOCATION AND YEAR	VARIETY		DIFFERENCE
	ALDURA	PRODURA	
YUMA, AZ.			
1976	6	4	+2
1977	5	2	+3
1978	1	1	0
WOODLAND, CA			
1976	8	7	+1
1977	8	7	+1
1978	7	7	0
3-YR. AVERAGE	5.8	4.7	+1.2

(1) Scale of 1-9: 1=very early and 9=very late.

TABLE 5. HEIGHT COMPARISONS OF ALDURA AND PRODURA

LOCATION AND YEAR	VARIETY		DIFFERENCE
	ALDURA	PRODURA	
	CM	CM	CM
YUMA, AZ			
1976	83	92	-9
1977	84	93	-9
1978	63	75	-12
WOODLAND, CA			
1976	98	100	-2
1977	74	82	-8
1978	82	86	-4
3-YR. AVERAGE	80.7	88.0	-7.3

TABLE 6. COMPARISON OF ALDURA AND PRODURA FOR LODGING (1)

LOCATION AND YEAR	VARIETY		DIFFERENCE
	ALDURA	PRODURA	
YUMA, AZ.			
1976	2	1	-1
1977	1	1	0
1978	2	5	-3
WOODLAND, CA			
1976	4	2	+2
1978	1	2	-1
3 YR. AVERAGE	2.0	2.2	-0.6

(1) Scale of 1-9: 1=erect and 9=flat.



NORTHROP KING CO.
P.O. BOX 959, MINNEAPOLIS, MN 55440

ADDENDUM

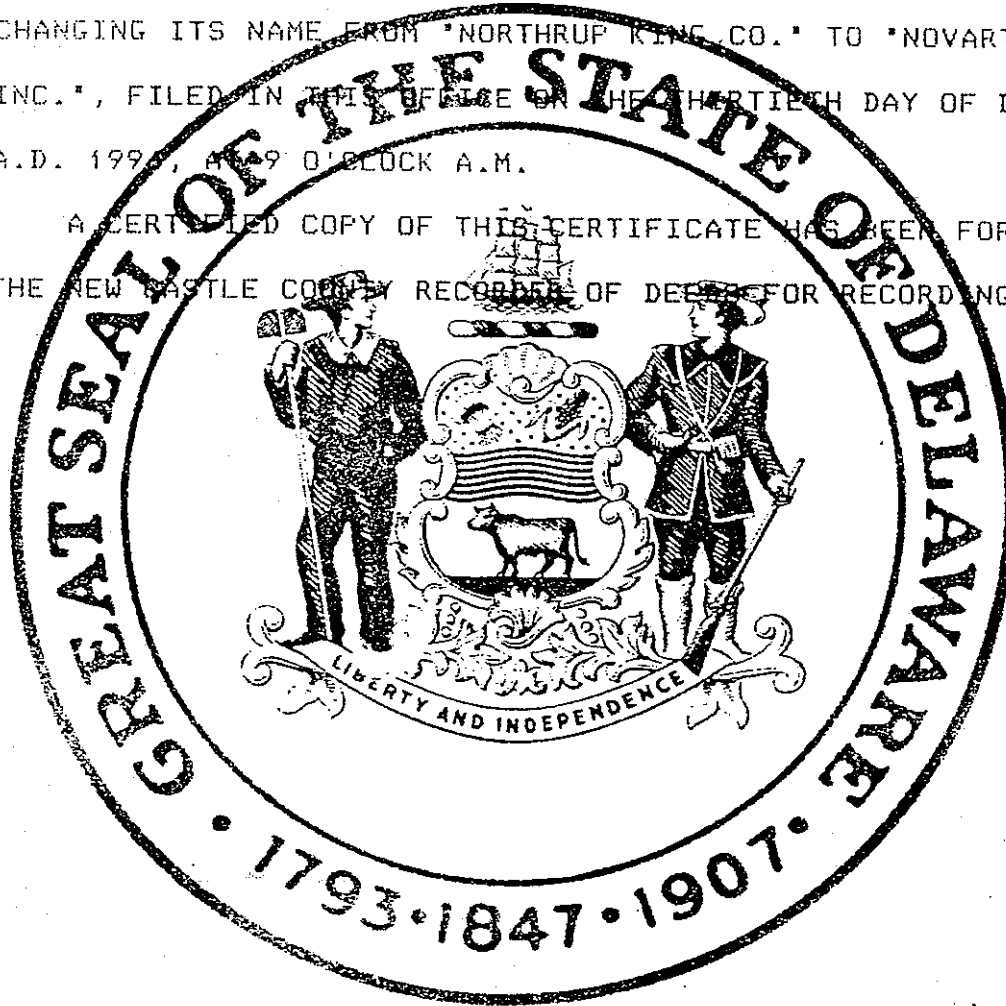
Table 7. Grain Proteins

<u>Year & Location</u>	<u>Variety</u>	
	<u>Aldura</u> %	<u>Produra</u> %
1980		
Maricopa, AZ	13.8	14.2
Buckeye, AZ	14.1	13.8
Chandler, AZ	12.5	13.6
Yuma, AZ	12.4	13.1
Woodland, CA	12.6	13.0
Mojave Valley, AZ	<u>11.2</u>	<u>10.7</u>
Average	12.8	13.1
1981		
Tucson, AZ	13.4	14.3
Holtville, CA	13.2	14.1
Counter Farm, AZ	<u>12.0</u>	<u>11.7</u>
Average	12.9	13.4

Office of the Secretary of State

I, EDWARD J. FREEL, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF "NORTHROP KING CO.", CHANGING ITS NAME FROM "NORTHROP KING CO." TO "NOVARTIS SEEDS, INC.", FILED IN THIS OFFICE ON THE THIRTIETH DAY OF DECEMBER, A.D. 1996, AT 9 O'CLOCK A.M.

A CERTIFIED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE NEW CASTLE COUNTY RECORDER OF DEEDS FOR RECORDING.



Edward J. Freel, Secretary of State

0829320 8100

960389892

AUTHENTICATION:

8267947

DATE:

12-31-96

CERTIFICATE OF AMENDMENT OF CERTIFICATE OF INCORPORATION
OF
NORTHROP KING CO.

It is certified that:

1. The name of the corporation (hereinafter called the "Corporation") is Northrup King Co.

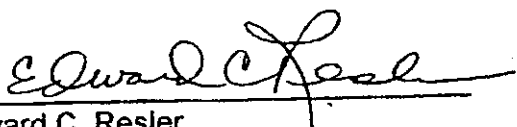
2. The Certificate of Incorporation of the Corporation is hereby amended by striking out Section 1 thereof and by substituting in lieu of said Section the following new Section.

1. The name of the Corporation is Novartis Seeds, Inc.

3. The amendment of the certificate of incorporation herein certified has been duly adopted and written consent has been given in accordance with the provisions of Sections 228 and 242 of the General Corporation Law of the State of Delaware.

4. The effective date of the amendment herein certified shall be January 1, 1997.

Signed on December 27, 1996.


Edward C. Resler
Vice President & Secretary